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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Diane R. Meirowitz
Assignee: Sun Microsystems, Inc.
Title: FACTORED ASSERT CHAINS
Serial No.: 10/625,334 Filing Date: July 22, 2003
Patent No.: 7,272,829 Issued: September 18, 2007
Examiner: Isaac Tuku Tecklu Group Art Unit: 2192
Docket No.: P-9240

Monterey, CA
November 9, 2007

ATTENTION: CERTIFICATE OF CORRECTIONS BRANCH
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

Certificate
NOV 19 2007
of Correction

REQUEST FOR ENTRY OF
CERTIFICATE OF CORRECTION

Sir:

Please enter the enclosed Certificate of Correction (PTO form 1050) in the above Patent.

The errors sought to be corrected were made by

- ☒ The Patent and Trademark Office (PTO) as explained below. Thus, no fee is required for the Certificate of Correction pursuant to 37 CFR §1.322.
- ☐ Applicant(s) (at least in part). See next section for explanation. The appropriate fee under 37 C.F.R. §1.323 is enclosed.

Attached as Exhibit A (6 pages) is a copy of the relevant pages of the proposed and adopted claim amendments mailed with the Notice of Allowance of May 17, 2007. This Exhibit supports the requested corrections to Claims 5, 11, 22, and 33, and

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shows that the errors were made by the U.S. Patent and Trademark Office.

As shown highlighted in Exhibit A, on pages 3 and 4 of the proposed and adopted claim amendments attached to the Notice of Allowance, originally numbered Claim 6 (renumbered in the Patent as Claim 5) reads:

A method for generating factored assert chains for a program in a compiler, the method comprising:

generating one or more assert statements in a basic block of the program, wherein an assert statement is a statement identifying known information regarding a variable at a specific point in said program;

creating a dominator tree for said basic block;

creating an initialized map of assert statements for each variable in said basic block; and

calling an assert chain search procedure with entry as a parameter, wherein entry is a root node of said dominator tree, and further wherein said assert chain search procedure has an input parameter X, the assert chain search procedure comprising:

for each statement S in X:

finding each variable use in the statement S;

for each variable use in the statement S:

determining if there is an available assert statement which defines information about the corresponding variable for the variable use; making an assert chain from the variable use to the available assert statement if there is an available assert statement which defines information about the corresponding variable for the variable use; and

iteratively calling the method using each child of X in the dominator tree as a parameter.

Specifically, in the Patent at Column 8, Claim 5, erroneous text present at lines 35 through 47, should be deleted.

Also, as shown highlighted in Exhibit A, on page 5 of the proposed and adopted claim amendments attached to the Notice of Allowance, originally numbered Claim 14 (renumbered in the Patent as Claim 11) reads "...a statement traverser...". The same

line in the Patent at Column 9, Line 40 reads "...statement traverser...". Specifically, the term "a" prior to "statement" has been omitted and should be added.

Also, as shown highlighted in Exhibit A, on page 9 of the proposed and adopted claim amendments attached to the Notice of Allowance, originally numbered Claim 25 (renumbered in the Patent as Claim 22) reads "...A computer-based apparatus for generating factored...". The same line in the Patent at Column 11, Line 9 reads "...A computer-based apparatus for, generating...". Specifically, the comma present after "for" and prior to "generating" should be deleted.

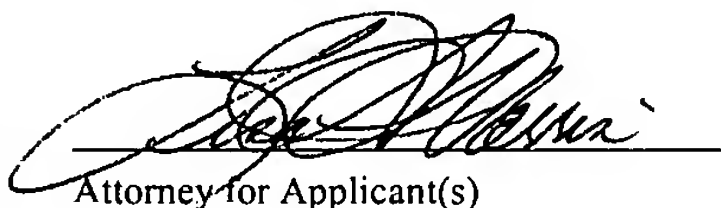
Also, as shown highlighted in Exhibit A, on page 14 of the proposed and adopted claim amendments attached to the Notice of Allowance, originally numbered Claim 39 (renumbered in the Patent as Claim 33) reads "...for each variable use in the statement S:...". The same line in the Patent at Column 14, Line 5 reads "...for each variable use in the statement S;...". Specifically, the semicolon present after "S" should be replaced with a colon.

Although it is believed that no fee is required, the Commissioner is hereby authorized to charge any additional fees required for consideration of the enclosed documents, and to credit any overpayment of fees to Deposit Account No. 50-0553.

Please direct all inquiries concerning this request to the undersigned attorney.


CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Attention: Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on November 9, 2007.


Attorney for Applicant(s)

November 9, 2007
Date of Signature

Respectfully submitted,



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2. (Original) The method of claim 1, further comprising saving a current value in a map of assert statements for each variable.

3. (Original) The method of claim 1, further comprising:
determining if the statement is an assert statement after said making;

adding a mapping from each variable use in the statement to an assert statement if the statement is an assert statement; and

deleting a mapping of any reference to an assert statement for each definition in the statement if the statement is not an assert statement.

4. (Original) The method of claim 1, further comprising restoring a current value of a map of assert statements for each variable after said iteratively calling.

5. (Cancelled)

6. (Currently amended) A method for generating factored assert chains for a program in a compiler, the method comprising:

generating one or more assert statements in a basic block of the program, wherein an assert statement is a statement identifying known information regarding a variable at a specific point in said program;

creating a dominator tree for said basic block;

creating an initialized map of assert statements for each variable in said basic block; and

calling an assert chain search procedure with entry as a parameter, wherein entry is a root node of said dominator tree, and further wherein said assert chain search procedure

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has an input parameter X, the assert chain search procedure comprising:

for each statement S in X:

finding each variable use in the statement S;

for each variable use in the statement S:

determining if there is an available assert statement which defines information about the corresponding variable for the variable use;

making an assert chain from the variable use to the available assert statement if there is an available assert statement which defines information about the corresponding variable for the variable use; and

iteratively calling the method using each child of X in the dominator tree as a parameter.

7. (Original) The method of claim 6, wherein said generating includes:

finding an if...then...else statement in said basic block, said if...then...else statement having a condition, a then portion, and an else portion;

inserting an assert statement indicating that said condition is true in said then portion; and

inserting an assert statement indicating that said condition is false in said else portion.

8. (Original) The method of claim 6, wherein said generating includes:

finding a do loop, said do loop having a non-constant stride; and

inserting an assert statement indicating that said stride is not equal to zero.

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9. (Cancelled)

10. (Currently amended) The method of claim 96, wherein said assert chain search procedure further comprises saving a current value in a map of assert statements for each variable.

11. (Currently amended) The method of claim 96, wherein said assert chain search procedure further comprises:

determining if the statement *S* is an assert statement after said making;

adding a mapping from each variable use in the statement *S* to an assert statement if the statement *S* is an assert statement; and

deleting a mapping of any reference to an assert statement for each definition in the statement *S* if the statement *S* is not an assert statement.

12. (Currently amended) The method of claim 96, wherein said assert chain search procedure further comprises restoring a current value of a map of assert statements for each variable after said iteratively calling.

13. (Cancelled)

14. (Previously amended) An apparatus for generating factored assert chains for a program from assert statements, wherein an assert statement is a statement identifying known information regarding a variable at a specific point in said program, the apparatus comprising:

a memory having stored therein at least a portion of an application for generating factored assert chains for a program from assert statements, said application comprising:

a statement traverser;

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23. (Original) The apparatus of claim 21, wherein said assert chain search procedure caller further comprises:

an assert statement determiner coupled to said statement traverser and to said assert chain creator;

a variable use mapping adder coupled to said assert statement determiner; and

an assert statement reference mapping deleter coupled to said assert statement determiner.

24. (Original) The apparatus of claim 21, wherein said assert chain search procedure caller further comprises a current variable value map of assert statements restorer coupled to said statement traverser.

25. (~~Previously~~ amended) A computer-based apparatus for generating factored assert chains from assert statements in a program using a compiler, the program having a dominator tree, wherein the method has an input parameter X initially assigned an entry node of said dominator tree, the apparatus comprising:

for each statement S in X:

means for finding each variable use in the statement S;

for each variable use in the statement S:

means for determining if there is an available assert statement which defines information about the corresponding variable for the variable use, wherein an assert statement is a statement identifying known information regarding a variable at a specific point in said program;

means for making an assert chain from the

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36. (Currently amended) The apparatus of claim ~~2230~~, wherein said assert chain search procedure further comprises means for restoring a current value of a map of assert statements for each variable after said iteratively calling.

37. (Cancelled)

38. (Previously amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for generating factored assert chains from assert statements in a program using a compiler, the program having a dominator tree, wherein the method has an input parameter X initially assigned an entry node of said dominator tree, the method comprising:

for each statement S in X:

finding each variable use in the statement S;

for each variable use in the statement S:

determining if there is an available assert statement which defines information about the corresponding variable for the variable use, wherein an assert statement is a statement identifying known information regarding a variable at a specific point in said program;

making an assert chain from the variable use to the available assert statement if there is an available assert statement which defines information about the corresponding variable for the variable use; and

iteratively calling the method using each child of X in the dominator tree as a parameter.

39. (Currently amended) A program storage device readable by a machine, tangibly embodying a program of

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instructions executable by the machine to perform a method for generating factored assert chains for a program in a compiler, the method comprising:

generating one or more assert statements in a basic block of the program, wherein an assert statement is a statement identifying known information regarding a variable at a specific point in said program;

creating a dominator tree for said basic block;

creating an initialized map of assert statements for each variable in said basic block; and

calling an assert chain search procedure with entry as a parameter, wherein entry is a root node of said dominator tree, and further wherein said assert chain search procedure has an input parameter X, the assert chain search procedure comprising:

for each statement S in X:

finding each variable use in the statement S;

for each variable use in the statement S:

determining if there is an available assert statement which defines information about the corresponding variable for the variable use;

making an assert chain from the variable use to the available assert statement if there is an available assert statement which defines information about the corresponding variable for the variable use; and

iteratively calling the method using each child of X in the dominator tree as a parameter.

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PATENT NO. : 7,272,829 B1

APPLICATION NO.: 10/625,334

ISSUE DATE : September 18, 2007

INVENTOR(S) : Diane R. Meirowiz

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Column 8, Claim 5, Line 35, delete "calling an assert chain search procedure with entry as a parameter, wherein entry is a root node of said dominator tree, and further wherein said assert chain search procedure instructions executable by the machine to perform a method for generating factored assert chains for a program in a compiler, the method comprising: generating one or more assert statements in a basic block of the program wherein an assert statement is a statement identifying known information regarding a variable at a specific point in said program; creating a dominator tree for said basic block; creating an initialized map of assert statements for each variable in said basic block; and "

In Column 9, Claim 11, Line 40, prior to "statement", insert --a--.

In Column 11, Claim 22, Line 9, after "for", delete ",".

In Column 14, Claim 33, Line 5, replace ";" with --:--.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

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This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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